

What is claimed is:

~~1. A method of extracting a face area from an image including a human face, the face extraction method comprising the steps of:~~

5 displaying the image and a predetermined face template;
 carrying out position matching between the face template and the face area to be extracted, by moving, transforming and/or rotating the face template and/or the image according to an input from input means; and

10 extracting the face area based on a result of position matching.

2. A face extraction method as defined in Claim 1, wherein the step of extracting the face area comprises the steps of:

15 calculating a degree of matching between the face template and the face area in accordance with the position matching; and
 extracting the face area based on the degree of matching.

3. A face extraction method as defined in Claim 2, wherein the step of calculating the degree of matching further comprises the step of:

20 generating unsharp images of the face template and an area corresponding to the face template in the image; and

 calculating the degree of matching between the unsharp images.

A 4. A face extraction method as defined in ^{Claim 1} ~~any one of~~
25 ~~claims 1 to 3~~, wherein the face template has a three-dimensional

shape.

5. A face extraction method as defined in Claim 4, wherein the three-dimensional shape is formed by a three-dimensional wire frame.

5 6. A face extraction method as defined in Claim ~~any one~~
~~of Claim 1 to 3~~, wherein the face template has a color different from a skin color.

7. A face extraction method as defined in Claim 6, wherein the color different from the skin color is a complementary color of the skin color.

8. A face extraction apparatus for extracting a face area from an image including a human face, the apparatus comprising:
display means for displaying the image and a predetermined face template;

15 input means for receiving an input for moving and transforming the face template;

position matching means for carrying out position matching between the face template and the face area to be extracted, by moving, transforming and/or rotating the face
20 template and/or the image according to the input from the input means; and

extraction means for extracting the face area based on a result of position matching by the position matching means.

9. A face extraction apparatus as defined in Claim 8,
25 wherein the extraction means extracts the face area by

calculating a degree of matching between the face template and the face area, according to the position matching by the position matching means.

10. A face extraction apparatus as defined in Claim 9,
5 wherein

the extraction means generates unsharp images of the face template and an area corresponding to the face template in the image, and

calculates the degree of matching between the unsharp images.

11. A face extraction apparatus as defined in ~~any one~~
Claim 8 ~~of claims 8 to 10~~, wherein the face template has a three-dimensional shape.

12. A face extraction apparatus as defined in Claim 11,
15 wherein the three-dimensional shape is formed by a three-dimensional wire frame.

13. A face extraction apparatus as defined in ~~any one~~
Claim 8 ~~of claims 8 to 10~~, wherein the face template has a color different from a skin color.

14. A face extraction apparatus as defined in Claim 13,
20 wherein the color different from the skin color is a complementary color to the skin color.

15. A computer-readable recording medium storing a program to cause a computer to execute a method of extracting
25 a face area from an image including a human face, the program

comprising the procedures of:

displaying the image and a predetermined face template;
carrying out position matching between the face template
and the face area to be extracted, by moving, transforming
5 and/or rotating the face template and/or the image according
to an input from input means; and

extracting the face area based on a result of the position
matching.

16. A computer-readable recording medium as defined in
10 ~~Claim 16~~¹⁵, wherein the procedure of extracting the face area
comprises the procedures of calculating a degree of matching
between the face template and the face area in accordance with
the position matching; and

extracting the face area based on the degree of matching.

15 17. A computer-readable recording medium as defined in
Claim 16, the procedure of calculating the degree of matching
comprising the procedures of:

generating unsharp images of the face template and an area
corresponding to the face template in the image; and

20 calculating the degree of matching between the unsharp
images.

18. A computer-readable recording medium as defined in
~~any one of Claims 15 to 17~~^{Claim 15}, wherein the face template has a
three-dimensional shape.

25 19. A computer-readable recording medium as defined in

~~Claim 18, wherein the three-dimensional shape is formed by a three-dimensional wire frame.~~

20. A computer-readable recording medium as defined in ~~Claim 15~~ ^{Claim 15} ~~any one of Claims 15 to 17~~, wherein the face template has a color different from a skin color.

21. A computer-readable recording medium as defined in Claim 20, wherein the color different from the skin color is a complementary color to the skin color.

22. A method of carrying out image processing on the face area extracted by using the face extraction method according to ~~any one of Claims 1 to 5~~ ^{Claim 1}, the image processing method comprising the step of:

converting a color tone of a desired area including the face area to a color tone of a predetermined target image.

23. An image processing apparatus for carrying out image processing on the face area extracted by the face extraction apparatus according to ~~any one of Claims 8 to 12~~ ^{Claim 8}, the image processing apparatus comprising:

conversion means for converting a color tone of a desired area including the face area to a color tone of a predetermined target image.

24. A computer-readable recording medium storing a program to cause a computer to execute a method of carrying out image processing on the face area extracted by using the face extraction method according to ~~any one of Claims 1 or 5~~ ^{Claim 1}, the

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~~program further comprising the procedure of:~~

~~converting a color tone of a desired area including the~~

~~face area to a color tone of a predetermined target image.~~

[illegible]